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ABSTRACT

This study examines the degree to which New York City's immigrant students are segregated and how segregation varies across groups with differing language skills and from different countries. It notes how schools attended by immigrant students differed by student characteristics, teachers, and funding levels. After reviewing the literature on school segregation, the paper provides a statistical portrait of New York City's immigrant students and presents the research hypotheses and methodology. Academic and socioeconomic data from all children in New York City's public elementary and middle schools, linked to institutional information on the schools themselves for the years 1995-1996 and 1998-1999, indicate that foreign-born students as an aggregate group are not especially segregated from native-born students, at least compared to levels of segregation of non-white and poor students. While there are some differences in terms of peer and school resource environments, there is little evidence that immigrants as a whole experience large effects from segregation. Nonetheless, when viewing particular groups of foreign-born students (especially students from the former Soviet Union and Caribbean), there are significantly higher levels of clustering. School segregation appeared to benefit Soviet immigrants, while harming Dominicans. (Contains 46 references.) (SM)

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# Immigrant Children and Urban Schools:
# Evidence from New York City on Segregation and its Consequences for Schooling

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## Introduction

Immigrant children represent a large and growing proportion of school children in the United States, especially in urban areas. An estimated 10.4 percent of the U.S. population is now foreign-born (the highest percentage since 1930); and in central cities, the proportion has risen to 16 percent (Lollock 2001; Schmidley and Gibson 1997). Yet we know surprisingly little about the experience or isolation levels of foreign-born students. While there is considerable research on the degree to which racial minorities are isolated in U.S. schools and on the disturbing consequences of this segregation, there is no parallel research concerning immigrants.

The goal of this paper is to begin to examine this issue, looking at evidence from New York City. In particular, we address two main questions. First, how segregated are immigrant students in New York's schools and how does that segregation vary across groups with differing language skills and from different regions of the world? Second, to the extent we do see segregation, how different are the schools attended by immigrant children (either overall or from particular regions) in terms of student characteristics, teachers, and funding levels?

New York City is an especially apt place to study immigrant students because the city's public schools educate so many immigrants, from such a broad range of countries (over 200), speaking a great diversity of languages (over 120). In addition, we have been able to assemble an extraordinarily detailed data set, which allows us to exploit the richness that New York City's student body provides.

The paper is organized as follows. In the first section we review the literature on school segregation and explore the ways in which segregation might affect immigrant

students. In section two we describe our data and provide a brief statistical portrait of immigrant students in New York City. In section three, we lay out the methods and hypotheses to be explored in this paper, while in section four we present our analysis of segregation of immigrant students. Section five concludes.

## I. Theory and Past Literature

It is worth discussing why we might be concerned about segregation in the first place. Through a variety of avenues, segregation may affect the educational and social outcomes of children. For example, many studies have found that a lack of interracial contact in elementary or secondary school can be harmful to black children, especially in the longer run (see Hanushek, Kain, and Rivkin 2001; Kain and O'Brien 1999; Mahard and Crain 1983; Wells and Crain 1994).[1]

Whether the same holds for immigrant children is not at all clear. The few studies that address this question find that ethnic isolation has either little effect or somewhat positive effects on immigrant children, but most of these studies rely on very small samples and use subjective assessments of either students or school personnel to describe the ethnic composition of peers (Matute-Bianchi 1986; Rumbaut 1996; Rodriguez 1999). Moreover, most studies of residential segregation have found that immigrant families are not nearly as segregated as blacks, that they tend to assimilate over time, and that first generation immigrants from a particular country or region are more segregated than their later-generation counterparts (Lieberson 1963; White, Biddlecom, and Guo 1993; Allen

[1] One notable exception to the finding that minority segregation may have negative impacts on their educational outcomes is Rivkin (2000). Using data on public school students from large, urban districts from the sophomore cohort of the High School and Beyond Longitudinal Survey, Rivkin finds that exposure to white students has little effect on a black student's subsequent test scores, years of education,

and Turner 1996; White and Omar 1996).[2] Therefore, even if segregation were to have an impact, it may be much smaller for immigrants, and may be disappearing with time.

Nonetheless, the evidence on the significance of segregation for blacks and the many theoretical reasons (outlined below) for why concentration might have an effect on immigrant students suggest that their segregation merits study. We discuss below three key ways in which school segregation might affect immigrant students: through peer effects; through differential resources; and through network effects.

*Peer Effects*

Whether and how much peers influence student performance has been studied extensively in education (see for example, Hanushek et al., 2001; Zimmer and Toma, 2000; Argys et al. 1996). The hypothesis is that a student's decisions about how much to study, how to behave in the classroom, and what kinds of classes to take are very much shaped by interactions with other students and those students' parents, and moreover, the level of discussion and instruction in a classroom is determined by one's peers.[3] If a group is highly segregated, its members will interact more intensively with other members of their own group and less with outsiders. The implication – as Cutler, Glaeser, and Vigdor (2000) point out – is that the impact of segregation on performance may depend critically on the characteristics of the segregated group in question. More specifically, isolation should lead to better outcomes for students from relatively advantaged groups and worse outcomes for students from disadvantaged groups. What

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or earnings (Rivkin 2000).

[2] One exception is Borjas (1994), who finds that even third generation Hispanic immigrants are nearly as isolated as those who are first generation.

[3] While there is a fair degree of consensus that peers can shape the performance of low-achieving students, there is less consensus about the relevance of peers to high achieving students. Some studies find that tracking (i.e., segregating high-performing children) benefits high-achieving students (Argys et al. 1996). Other studies find that tracking makes little difference to their performance (Slavin 1990).

they don't point out is that because segregation is not complete, the characteristics of the *other* students who attend schools with the segregated group is also critical in determining peer effects.

For blacks, who have significantly lower levels of education and earnings than the national average, segregation has meant that they typically live in higher poverty neighborhoods and attend schools with a greater share of students who are poor and from less educated families (Massey and Denton 1993; Jargowsky 1997). Given racial prejudice and the relatively low incomes of blacks, it is also probably true that the non-blacks who attend schools with large numbers of blacks come from relatively poor and disadvantaged backgrounds, compared to the average non-black.

For immigrant groups, whether segregation leads to less advantaged peers is less clear. On the one hand, immigrants in the U.S. are less educated on the whole than the native-born. In 2000, 64 percent of native-born adults had at least a high school degree as compared to just 41 percent of foreign-born adults (Lollock 2001). On the other hand, some hypothesize that immigrants embrace education as a strategy for upward mobility, and that immigrant children may thus encourage their peers to spend more time on their schoolwork (McDonnell and Hill 1993). This positive peer effect may be particularly salient for immigrants living in high-poverty, inner-city neighborhoods where schools are often troubled and where native-born youth are regarded as being more alienated from mainstream educational culture (Portes 1995; Portes and Zhou 1994)..

Moreover, we see tremendous diversity in the backgrounds of parents immigrating from different parts of the world. For example, 84 percent of Asian immigrants 25 and over had at least a high school education in 2000, roughly the same

proportion as the native-born. By contrast, only 37 percent of immigrants this age from Central America had completed high school (Lollock 2001). Thus, if peers (or their parents) matter, this aspect of segregation is likely to have more harmful consequences for children born in Central America as compared to those born in Asia.[4] Cutler, Glaeser, and Vigdor (2000) find the effects of residential segregation on adults vary significantly across immigrant groups from different countries. They find that living in a more highly segregated city is correlated with lower incomes and educational outcomes only for groups with low initial skill levels (as measured by standardized occupation scores).

Again, because segregation is not complete, it is also important to consider which other demographic groups attend schools with immigrants. Given that many immigrants to the United States are racial minorities, and given the high levels of racial segregation that characterize our schools, this is likely to hinge a great deal on race. For example, we would expect to see Hispanic immigrants sharing schools disproportionately with native-born Hispanics, students whose families are typically poorer and less educated as compared to native-born whites.

*Resources*

Allocations of resources within school districts reflect the interplay of politics, differences in costs, and, more generally, result from the accumulated decisions of teachers, principals, parents and students, each of whom enjoy some measure of school choice. Thus, who one goes to school with can also affect the resources in a school. Political pressures may mean a segregated group gains access to schools with greater or fewer resources, such as number and quality of teachers and overall levels of funding.[5]

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[4] The quality of the educational systems in the origin countries is also likely to play a role here.

[5] There is an enormous literature on the issue of whether resources, and which ones, affect student

Once again, there is some evidence that schools with larger shares of blacks or Hispanics enjoy fewer resources (Kain and Singleton, 1996). In New York State, recent court hearings have ruled in favor of analyses showing that school districts in the state with greater shares of minorities receive less state aid and expenditures per pupil (Campaign for Fiscal Equity, Inc. v. State of New York, 2001). While evidence on the intradistrict relationship between resources and race is thinner, Iatarola and Stiefel (forthcoming) and Schwartz and Gershberg (2001) both find evidence that schools with more black students receive fewer of some resources in New York City, ceteris paribus.

As for immigrants, there are certainly reasons to believe that immigrants would have relatively little political power – many parents, for instance may not even be legal and therefore do not participate in the political process.[6] Some groups of legal immigrants may vote less frequently as well due to language barriers. Verba, Schlozman, and Brady (1995), for instance, find that voter turnout in the U.S. is significantly lower among Hispanic citizens than it is among non-Hispanic whites and blacks.

With that said, it may be true that ethnic concentration can enhance political power. Clustering may also allow for the targeting of specialized resources that benefit immigrants, such as bilingual programs. Both the New York State and federal governments provide additional resources for districts serving large limited English proficiency (LEP) populations. In 1996-97, approximately $81 million in state aid and $23.5 million in federal aid were provided to fund English as a Second Language (ESL)

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achievement and other student outcomes, with not much consensus about the answer. One of the earliest studies by Coleman et al. (1996) stated that family background was more important than school inputs in the determination of achievement. Since then, prominent researchers such as Hanushek (1986, 1997) and Greenwald et al. (1994, 1996) have come to conflicting conclusions. Burtless (1996) summarizes much of this literature.

[6] Eligibility for New York City public schools is unaffected by immigration status.

and bilingual education programs for LEP students.[7] The New York City Board of Education allocates funds for bilingual classes if there are 15 or more students in the same grade speaking the same language.[8] Thus, the resources a school receives to provide services to its LEP population depends, in part, on whether there is a critical mass of students speaking a particular language.

In sum, it is not clear a priori whether segregation should predict greater or lesser resources for immigrant children. Evidence on differentials is limited. Iatarola and Stiefel (forthcoming) find that higher proportions of recent immigrants are associated with lower per-pupil spending, higher pupil/teacher ratios, but more experienced teachers. As explained in Schwartz and Gershberg (2001), there is relatively little in the way of additional funding aimed directly at providing services to immigrant children.[9] Instead, existing policies (and sources of funding) focus on addressing LEP students. Consistent with this policy, they find that school-level resources generally increase with the representation of LEP students but decline with the proportion of immigrants, ceteris paribus. Thus, immigrant groups with stronger English skills, such as Caribbean immigrants, appear to receive fewer resources.

*Networks and Norms*

Even if resources and peers are fairly similar across schools, the isolated children may still be disadvantaged by their lack of connection to the mainstream culture. This is

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[7] See Schwartz and Gershberg (2001) for more.

[8] When there are fewer than 15 pupils in the same language category and grade, ESL teachers are allocated at the ratio of one teacher per 75 students.

[9] A small Federal program, the Emergency Immigrant Education Program (EIEP), is aimed explicitly at immigrants. At approximately $5 million in funding in 1996-97, however, the EIEP is too small to significantly effect the distribution of resources. (Gershberg 2000)

likely to be a long-term effect – one that shows up as children grow up and begin to navigate the labor market. At this point, they may find that they have fewer connections to jobs, less practice interacting with the dominant group, and less familiarity with cultural norms. Wells and Crain (1994), for instance, find that black Americans attending desegregated schools benefited greatly over the longer-run, but not because their test scores were any higher. Rather, they benefited from the superior connections that they had made to the white world and the greater ease they felt in interacting with whites.

With this said, ethnic isolation might in fact provide children with denser networks of connections within their group and provide far greater opportunities for within-group trade and interaction (through ethnic networks). In the case of immigrants, ethnic clustering may also help to ease their transition to the United States, permitting them to interact with others who share their language and customs and can offer guidance in how to maneuver in this new society.

Given that these effects will not appear immediately and are primarily observed outside of the school environment (and therefore our data), our work focuses on the first two ways segregation may affect immigrants' school outcomes. But any differences we find in peers and school resources may also have implications for networks and norms.

In summary, there are several reasons to believe that segregation may well affect immigrant children, for better or for worse. There are of course more normative reasons why we might care about segregation, *per se*. For one thing, segregation often implies a lack of choice or coercion. For another, such segregation may help to sustain cultural

barriers and prejudice over the longer-run and further the balkanization of the American population.[10]

## II. Data Description and Statistical Portrait of Immigrant Students

New York City educates more than one million students each year, in over 1,100 schools. In this study, we use a rich data base that includes academic and socioeconomic information on all of the children in New York City's 870 public elementary and middle schools, linked to institutional information on the schools themselves, for two academic years, 1995-96 and 1998-99.[11] More than 600,000 children attend these schools in any single year, representing a wide range of cultures, languages and backgrounds.

The student-level data, which we aggregate to the school level for this study, include eligibility for free or reduced price lunch (our proxy for poverty), race/ethnicity, and test scores.[12] Most relevant for our study, the student-level data also include detailed information on student country of birth, an indicator identifying 'recent immigrants' (who have entered the school system within the last three years) and performance on the Language Assessment Battery (LAB).[13] The latter set of tests is used to assess English proficiency and eligibility for specialized instructional services, and allows us to identify students with varying English skills. School-level data include information on teachers (e.g., percentage certified, percentage with masters degrees) and expenditure data by

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[10] A recent report in Great Britain expressed great concern that the country would suffer balkanization as a result of its growing segregation (Hoge 2001).

[11] The data have been generously provided by the New York City Board of Education.

[12] In contrast to Census Data, 'Hispanic' is a distinct race/ethnicity group in this data, as in other administrative data. There are five mutual exclusive race/ethnicity categories in the data: white, black, Asian, Hispanic, or other.

[13] We refer to foreign-born students as immigrants, but some may have been born abroad to U.S. citizens

function of expenditure (e.g. classroom and non-classroom). By combining these data, we can directly assess both the peer and resource environments.

Table 1 presents descriptive statistics for *all* students for the 1998-99 school year, the latest available. As shown, the overwhelming majority of students are non-white (84 percent), nearly 87 percent are poor, and 16 percent are foreign-born.

Table 2 provides some more detailed information on immigrant students themselves. As shown, 46 percent of these foreign-born students are recent immigrants and 31 percent scored less than 40 on the Language Assessment Battery, a group we will refer to as immigrants with limited English skills (LES).[14] To make the geographic diversity of these students manageable, we have grouped the 200 plus countries by region, based on geographic proximity and similarities in language and race/ethnicity. The six largest regions, representing 78 percent of immigrant students, are presented separately. The single largest group, including roughly 19,000 elementary and middle school children and 19% of all foreign-born students, comes from the Dominican Republic. Students from "Mexico, Central America, or Spanish South America" represent the second largest group (over 15,800 students), "Caribbean" countries comprise over 15,000 students, and "Soviet" countries (countries from the former Soviet Union) over 10,000 students.[15] As compared to the overall student population, foreign-born students are much more likely to be Asian and less likely to be black. Immigrants as a group are also somewhat more likely to be poor.

Table 3 reveals some differences among these immigrant sub-groups. Recent immigrants, for instance, are both more likely to have limited English skills and

[14] A score of 40 is one criteria used to determine eligibility for services aimed at Limited English Proficiency (LEP).

somewhat more likely to be poor than the foreign-born population as a whole. Poverty is even more common among LES immigrants. In fact, fewer than four percent of LES immigrants are *not* poor, suggesting that this group might be particularly vulnerable. The table also shows striking differences across regions. While more than half of Dominican immigrants are LES, for instance, only about 7 percent of Caribbean immigrants and less than 16 percent of Soviet immigrants are LES. In terms of poverty, roughly three-quarters of Soviet immigrants are poor, making Soviet students less likely to be poor than the native-born. Meanwhile Dominican students, with a poverty rate exceeding 98 percent, are virtually all poor. As suggested in the previous section, these differences may affect the segregation and school environment of these groups. We exploit the size and diversity of these immigrant groups throughout the remainder of the paper.

## III. Hypotheses and Methods

As noted above, our primary motivation for examining the segregation of immigrants in schools is its potential impact on school performance (and other outcomes), via its effects on peers and resources. To do this, we first examine the degree to which different immigrant groups are segregated in the New York City schools. Second, we then provide evidence about the consequences of this segregation by considering two key aspects of immigrants' school environment shaped by this segregation: peers and resources.

To accomplish the first aim, we rely on conventional measures of segregation. The first, the dissimilarity index, best captures the overall unevenness of a population's

[15] Caribbean countries include countries in the Caribbean other than the Dominican Republic.



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distribution and has been used extensively in both the residential and school literatures.[16] Intuitively, the dissimilarity index indicates the percentage of one group of students that would have to change schools in order to be evenly distributed across all schools, therefore increasing with segregation. We also use two versions of interaction indices to capture the potential contact between groups. Specifically, we use the exposure index to capture the extent to which the average student from one group is exposed to, or likely to interact with, students from another group and the isolation index to show how much she is likely to interact with students from her own group.[17] We look at the exposure of each group to the native-born, and at the isolation of each group.

While there is little systematic evidence on the segregation of immigrants in schools, based on the evidence from residential segregation and the strong link between residential location and primary schools, we expect to see somewhat greater segregation for more recent immigrants and those with Limited English Skills (LES).

The second key aim in the paper is to begin to explore the consequences of this segregation. To be clear, we are not directly testing how student performance is affected by segregation levels. We instead provide information about how segregation shapes the school environments of particular groups of immigrants through two avenues found relevant in previous literature on segregation and school performance: peers and resources. Here, we provide some important groundwork for testing whether immigrants are helped or hurt by segregation by exploring the extent to which segregation has meant

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[16] For a discussion of the dimensions of segregation and an assessment of best-associated measures, see Massey and Denton, 1988). For examples of use of measures, see Clotfelter (1998), Orfield (1993), Orfield and Yun (1999), and Rivkin (1994); for residential segregation, see Reynolds and Farley (1996), Massey and Denton (1993), and White and Omar (1996).

[17] For the average student of group "A," the Exposure index tells us the share of her school's population that belongs to group "B", while the Isolation index tells us the share of her school's population that also belongs to group "A."

that immigrants or particular groups of immigrants face a different set of peers and enjoy a different level of resources.

To capture the composition of the student body at schools that children attend, we again use the exposure index, to measure exposure to peers. Given the existing literature on peer effects cited previously, we focus on four characteristics of peers that might matter and that are available in our data: poverty; race; language skills; and test scores.

Our resource analysis focuses on teacher qualifications and per student spending, commonly used measures in analyses of school performance. For those who find that some resources do matter, teachers are often cited as important (Ferguson, 1991; Ladd and Ferguson, 1996). We also report expenditures, including classroom and non-classroom, because at least some researchers find that spending can have positive marginal effects, and there is some evidence that the impact differs between classroom and other types of spending. We examine whether these resources differ for either immigrant students as a whole or for particular subgroups of immigrants.

As for hypotheses, while we have no clear expectations for immigrants as a whole (other than greater exposure to LES students), we would expect certain groups of immigrants to experience different peers. As Cutler, Glaeser, and Vigdor (2001) point out, those who come from a less advantaged group (in terms of general human capital) will have higher poverty and higher LES peers. Moreover, we also expect immigrants to share schools disproportionately with native-born students of their same race, which means we expect black and Hispanic immigrants to be exposed to somewhat higher poverty rates and lower test scores. For resources, we would expect LES immigrants to enjoy somewhat greater funding although less experienced teachers, because of the

difficulty in finding teachers with appropriate language skills. And through a combination of peers and school resources, we may expect immigrants with fewer human and financial resources to attend schools with lower average test scores.

## IV. Empirical Evidence

### *Segregation of immigrants*

Table 4 shows three segregation indices for our various groups.[18] The first column presents dissimilarity indices, showing the degree to which various groups are separated from the rest of the population. The dissimilarity index for foreign-born versus native-born is .328 for 1999, indicating that just about one-third of foreign-born students would need to change schools to achieve a completely even distribution. Foreign-born students, in other words, are only about half as segregated as non-white students (dissimilarity index of .677).[19] Segregation is also much higher along poverty lines, with a dissimilarity index of .556. Contrary to expectations, recent immigrants are not more segregated than are immigrants overall. Those with limited English skills, however, are more segregated.

When looking at immigrants from specific regions, we see that each of these groups is more segregated than immigrants as a whole.[20] Students from the former Soviet Union and students from Caribbean countries (other than the Dominican Republic) are the two most segregated (dissimilarity indices of 0.504 and 0.498 respectively).

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[18] Note that we compared segregation levels in 1995-96 to levels in 1998-99 and found that the indices were quite stable over time.

[19] Whether this is a low level of segregation depends on the benchmark. It is unclear that the very high level of racial segregation should be used as the benchmark.

[20] The dissimilarity index is a dichotomous measure of exhaustive categories. Therefore, these region indices measure the degree to which students born in a particular region are separated from all other students, not simply the native-born.

The next column shows exposure to the native-born, which more directly captures potential interaction with native-born students. We see that the average foreign-born student attends a school in which 76 percent of students are native-born. (By contrast, the typical native-born student attends a school in which 85 percent of students are native-born.) Looking across regions, exposure to the native-born varies from a high of 80 percent for Dominican immigrants to a low of 67 percent for Soviet immigrants.

The third column presents a final dimension of segregation, each group's level of isolation, or exposure to its own members. Soviet immigrants have the highest level of isolation (0.175), indicating that the average Soviet immigrant goes to a school in which almost 18 percent of the population was also born in the former Soviet Union. This high isolation is not simply driven by a large population; as the last column shows, Soviet immigrants comprise less than 2 percent of all students. Consider that Dominican immigrants, who make up a larger share of the population, are not nearly as isolated.

*Peers*

Table 5 provides a summary portrait of the peers experienced by a typical member of each of our immigrant groups. Specifically, it shows exposure to various student characteristics (poverty, race and limited English skills). For reference, the first row provides the percentage of the total population that are poor, black, etc. If students were evenly distributed across schools, the exposure index to any group would always equal its share of the population.

Starting with poverty, the table shows that native-born students, immigrants, and recent immigrants all typically attend schools where between 86 and 88 percent of the

students are poor. LES immigrants face somewhat higher poverty rates, but the more striking differences emerge when we look at region sub-groups. As shown, the typical Dominican student attends a school where 96 percent of students are poor; the typical Soviet immigrant, by contrast, attends a school where approximately 77 percent of students are poor.

These differences are partly driven by the differential poverty rates of the groups themselves (recall from Table 3 that 98 percent of Dominican immigrants are poor compared to only 74 percent of Soviet immigrants). But these immigrant groups are simply not that isolated. Even in the case of Soviet immigrants – the most isolated group – only 17 percent of their peers on average are also Soviet immigrants. So most of these differences are driven by the poverty rates of the *other* students these immigrants go to school with. Consider Dominicans – the typical Dominican immigrant attends a school where just 10 percent of students were born in the Dominican Republic and 96 percent of students are poor. This suggests that the "other" students in the schools attended by Dominican immigrants have poverty rates of nearly 96 percent.

The table also shows that, fitting with the high levels of racial segregation in the New York City schools, immigrants tend to go to schools with students of their own race. The average immigrant from the Dominican Republic and from other Caribbean countries, for instance, attends a school that has almost no white students. Recall from Table 3 that Dominican immigrants are virtually all Hispanic and other Caribbean immigrants are primarily black. Soviet immigrants, meanwhile, who are virtually all white, attend schools where nearly half of students are white. We will return to distinctions in race again, below.

Finally, the last column considers exposure to students with limited English skills. As expected, foreign-born students have greater exposure to students with limited English skills than do the native-born, particularly foreign-born students themselves with limited English skills. Immigrants from all regions, with the exception of other Caribbean countries, attend schools where more students have limited English skills than do native-born students. To the extent that exposure to students with better English skills is beneficial, isolation of these groups could have a negative effect, particularly for those groups whose own language skills are more limited. Notice that these exposure levels, however, are much lower than the prevalence of LES among these groups themselves. For example, almost half of students born in China, Taiwan or Hong Kong have limited English skills, but they typically attend schools where the percentage of LES students is only 13 percent.

Perhaps the most direct measure of relevant peer characteristics would be the average test scores of a student's peers. While this measure may capture a critical characteristic of one's peers, it is itself shaped by the school environment, both through peers and resources. Recognizing this interdependency between this peer characteristic and the rest of the school environment, we construct a separate table (Table 6) showing test scores in the schools attended by the average student in each of the subgroups. Note that to help separate peer characteristics from the effect of the school environment, these show the test scores the students received at the end of the *prior* school year (when they were in the 3rd and 6th grades rather than the 4th and 7th grades).

*Test Scores*

The first row of Table 6 provides the average (normalized) test scores for students in schools attended by the native-born. Immigrants as a whole do not appear to attend schools with students with noticeably different test scores from native-born students. Nor do more recent immigrants or LES immigrants, although the test scores for seventh grade appear somewhat lower for LES immigrants.

The largest differences are by region of birth, and these are striking. Students born in the Dominican Republic, who had the highest level of own poverty and exposure to poverty, attend schools where test scores are the lowest of any of the groups in the table. These low scores occur for both sets of tests. At the other extreme are the very high test scores in schools attended by Soviet immigrants, a low poverty and low LES group. While Soviet immigrants are the most isolated of all of our immigrants, this isolation appears to increase their contact with a relatively advantaged student population. Note that the Chinese and South Asian immigrants also attend schools where test scores are higher than the average scores in schools attended by the native-born.

*Resources*

Table 7 provides weighted means of school resources by immigrant group, which captures the resources offered at the schools attended by the average student in each of the subgroups. The first three columns report, for the average student in each group, the proportion of teachers in a variety of tenure and educational categories. The final two contain per pupil expenditure data. Classroom spending is comprised primarily of spending on classroom teachers. Thus, differences in classroom spending across schools reflect both differences in the number of teachers per pupil as well as differences in the average salaries of teachers (which, in turn, reflect differences in experience and

education). Aggregate spending includes spending on a wide range of school resources, such as libraries, guidance counselors, principals, food service, school safety, and building maintenance, in addition to classroom teachers.

The table provides no evidence that foreign-born students are in schools with less experienced or less educated teachers than native-born students. Instead, slightly more of the teachers in these schools are licensed, have been teaching for at least five years, and have masters' degrees. While there is little difference in classroom spending, the schools attended by foreign-born students average roughly $300 less per pupil in aggregate spending. The same pattern obtains for recent immigrants. Whether or not these differences are important depends, in part, on the services provided outside the classroom and their efficacy. Unfortunately, we know of no evidence on the impact of these resources on school performance.

We hypothesized above that LES immigrants would receive more resources, given that existing policies (and sources of funding) focus on addressing English proficiency and not nativity status *per se*. Our analyses indicate that, as compared to other immigrants, LES immigrants do attend schools with higher classroom spending. But the table also shows that they attend schools that have less educated and experienced teachers, suggesting that in these schools less experienced teachers may be compensated with a larger number of teachers.[21] Whether this reflects the lesser experience of teachers fluent in the languages spoken by recent immigrants, or teacher preferences for certain schools or locations, for example, is unclear.

[21] This is also consistent with findings by Iatarola and Stiefel (forthcoming) that show higher pupil/teacher ratios for recent immigrants. That is, this group of students has slightly more senior and educated teachers but fewer of them per pupil, leading to lower spending per pupil.

We again find our largest differences when looking at immigrants born in specific regions, particularly in terms of teacher characteristics. The Dominican Republic and other Caribbean countries stand out on the low side. Students born in these regions attend schools in which teachers are noticeably less educated and experienced, when compared to other foreign-born or to native-born students, although their overall spending is high. At the other extreme, once again, are the Soviet immigrants. Their schools enjoy the highest measures of teacher experience and education across the board, and considerably higher than found in schools attended by the native-born. Surprisingly, these differences in teacher qualifications do not result in higher spending per pupil overall, although we do observe differences in classroom spending, suggesting a trade-off between spending inside and outside the classroom. Finally, South Asian immigrants attend schools that receive fewer resources than any other group – almost $600 less per pupil in aggregate spending compared to Dominicans and the native-born.

In summary, aggregate per pupil spending is at lower levels for all groups of immigrants as compared to the native-born. (Among immigrants, spending is highest for those with limited English skills.) When looking at teacher characteristics, we see greater variation and learn that the immigrants whom we would categorize as more disadvantaged, are taught by less well-qualified teachers. Soviet immigrants, meanwhile, the most isolated of our immigrant groups, enjoy a relatively advantaged student population and attend schools with teachers who are more qualified than those found in the schools of the native-born, even though spending is low.

*The Role of Race*

The high degree of racial segregation that characterizes New York City's schools suggests that immigrants of different races will face peers of different races. Recall from Table 5 that our immigrant sub-groups attend schools in which the other students are disproportionately of their same race. Dominican immigrants, for example, who are virtually all Hispanic, attend schools in which over 90 percent of students are black or Hispanic.[22] Soviet immigrants, meanwhile, who are virtually all white, attend schools in which less than a third of students are black or Hispanic. To some extent, then, the disparities we see across immigrant groups seems to be driven by racial differences, rather than by differences in language or other educational characteristics.

Table 8 tries to capture the relationship between race and school environment, measured, as before, by poverty levels, test scores, and resources. The first column shows exposure to poverty and indeed shows large racial differences – differences that generally swamp any disparities by nativity status.[23] As compared to both white and Asian immigrants, black and Hispanic immigrants attend schools that have far higher rates of poverty. The main story appears to be that black and Hispanic immigrants, whose own poverty rates are high, are clustered in schools that are also populated by native-born students of similar race/ethnicity, whose poverty rates are similarly high.

The racial patterns are also quite clear when looking at test scores. Asian, and particularly white students, regardless of nativity, attend schools with fourth grade students who scored well above average on the previous year's (3rd grade) reading tests (and the same patterns hold for other tests as well). Black and Hispanic students, by

[22] On the Census, Dominicans typically describe themselves as both black and Hispanic.
[23] While foreign-born whites attend schools with poverty rates more than 15 percent higher than native-born whites, the disparity between foreign and native-born Asians is less than 6 percent and the difference between schools attended by foreign and native born blacks and Hispanics is one percent or less.



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contrast, attend schools with students whose test scores are well below average. Again, the differences across nativity status are small compared to the differences across race.

Differences by race also loom large when looking at teacher characteristics. White students (whether foreign-born or not) go to schools with the most experienced and educated teachers. Asian students attend schools with teachers of greater experience and level of education than other minorities, while all black and Hispanic students (of any nativity) compete for the lowest levels. Once again, foreign-born white and Asian students have slightly lower levels than their native-born counterparts, but differences across races are far more pronounced.

As before, these differences in teacher characteristics do not translate into similar spending differences, due to a combination of differences in teacher-pupil ratios, as well as differences in non-classroom spending across schools. Again, the biggest differences are seen between racial groups rather than between the native-born and foreign-born groups of the same race. Black and Hispanic students (whether foreign born or native-born) attend schools with the *highest* level of spending, exceeding the spending in schools attended by white children by as much as $450 and by Asian children by as much as $750. Whether these spending disparities reflect the greater political power of black and Hispanic communities, or greater educational needs of students in the schools attended by black and Hispanic children (due, for example, to poverty, LES or other special needs) is unclear and left for future research. Note, however, that Iatarola and Stiefel (forthcoming) and Schwartz and Gershberg (2001), find little consistent evidence that race *per se* is associated with differences in expenditures across schools in New York City, controlling for LES, poverty, and other school variables.

VII. Conclusions

In summary, we find that foreign-born students as an aggregate group are not especially segregated from native-born students, at least as compared to levels of segregation of non-whites and poor. While there are some differences in terms of peer and school resource environments, there is little clear evidence that immigrants as a whole would experience large effects from segregation (at least through the avenues we explore).

Nonetheless, when looking at particular groups of foreign-born students (especially students from the Former Soviet Union and the Caribbean), we see significantly higher levels of clustering. The schools attended by these different groups – even within a single, large urban school district -- are strikingly different, suggesting that the consequences of segregation are quite different across groups. At one extreme, the typical Soviet immigrant attends a school where students are far less likely to be poor or non-white, have stronger English skills, and achieve mean standardized test scores that are significantly above the citywide average. Teachers in these schools also have more experience and are better educated than the teachers found either in the schools of other immigrant groups, or of the native-born. By contrast, Dominican immigrants go to schools with students who are virtually all poor, virtually all black or Hispanic, and more likely to be LES. They also attend schools where test scores are significantly below average and where the teachers are less experienced and less well educated compared to all other groups. At the same time, spending is highest in the schools attended by these

groups, reflecting, perhaps, a trade-off made between numbers of teachers and teacher experience and/or higher non-classroom resources.

If these school environment characteristics matter, these two groups highlight how school segregation may benefit or harm specific immigrant groups. On the one hand, the high level of isolation of Soviet immigrants, an advantaged group, appears to benefit them. On the other, the isolation of Dominicans increases their contact with a disadvantaged group, presumably to their detriment. Moreover, given that these groups make up a relatively small share of the student population, an immigrant student's peer environment is even more shaped by the others – outside of their group – with whom they go to school. For Soviet students, a dominantly white group, racial segregation in the school system also benefits this group and means that they attend schools with lower poverty rates, more experienced teachers, and higher test scores, albeit with lower spending. And again, this segregation appears to have the opposite effect on the Dominican immigrants. Thus, while segregation appears to make little difference to the environments of immigrants as a whole, segregation may be having rather large, and rather different effects on immigrant from particular regions of the world.

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Table 1: Characteristics of All Students, 1998-99

| | Number | Proportion |
|---|---|---|
| Total Enrollment | 611,479 | |
| Native-born | 513,043 | 0.839 |
| Foreign-born | 98,436 | 0.161 |
| Black | 217,174 | 0.355 |
| White | 95,506 | 0.156 |
| Hispanic | 231,313 | 0.378 |
| Asian | 65,524 | 0.107 |
| Native American or unknown ethnicity | 1,962 | 0.003 |
| Eligible for free or reduced price lunch | 501,238 | 0.866 |

Note: Eligibility for free or reduced price lunch proportions are based on 578,773 students

Table 2: Characteristics of Foreign-born Students, 1998-99

| | Number | Proportion |
|---|---|---|
| Total Foreign-born | 98,436 | 1.000 |
| | | |
| Recent immigrant | 45,673 | 0.464 |
| Limited English Skills (LES) | 30,738 | 0.312 |
| | | |
| Six Largest Regions | | |
| Born in Dominican Republic | 18,742 | 0.190 |
| Born in Mexico, Central America, or Spanish South America | 15,839 | 0.161 |
| Born in Other Caribbean | 15,081 | 0.153 |
| Born in Former Soviet Union | 10,118 | 0.103 |
| Born in South Asia | 9,721 | 0.099 |
| Born in China, Hong Kong, or Taiwan | 7,238 | 0.074 |
| | | |
| Black | 19,527 | 0.198 |
| White | 17,743 | 0.180 |
| Hispanic | 35,052 | 0.356 |
| Asian | 25,883 | 0.263 |
| | | |
| Eligible for free or reduced price lunch | 84,063 | 0.903 |

Note: Eligibility for free or reduced price lunch proportions are based on 93,112 students

Table 3: Characteristics of Foreign-born Sub-groups, 1998-99

| | Eligible for free or reduced price lunch | Recent immigrant | LES |
|---|---|---|---|
| % of Foreign-born who are: | 0.903 | 0.464 | 0.312 |
| % of Recent immigrant who are: | 0.917 | 1.000 | 0.442 |
| % of LES who are: | 0.967 | 0.657 | 1.000 |
| % of born in Dominican Republic who are: | 0.984 | 0.373 | 0.533 |
| % of born in Mexico, Central America, or Spanish South America who are: | 0.946 | 0.430 | 0.452 |
| % of born in Other Caribbean who are: | 0.945 | 0.475 | 0.071 |
| % of born in Former Soviet Union who are: | 0.736 | 0.416 | 0.158 |
| % of born in South Asia who are: | 0.910 | 0.573 | 0.356 |
| % of born in China, Taiwan, or Hong Kong who are: | 0.902 | 0.555 | 0.478 |

Table 4: Segregation and Exposure, 1998-99

| | Dissimilarity Index | Exposure to Native-born | Isolation Index | Percentage of Total Students |
|---|---|---|---|---|
| Native-born | 0.328 | 0.854 | 0.854 | 0.839 |
| Foreign-born | 0.328 | 0.763 | 0.237 | 0.161 |
| Recent immigrant | 0.306 | 0.767 | 0.117 | 0.073 |
| LES | 0.376 | 0.750 | 0.106 | 0.050 |
| Born in Dominican Republic | 0.483 | 0.803 | 0.105 | 0.031 |
| Born in Mexico, Central America, or Spanish South America | 0.405 | 0.758 | 0.071 | 0.026 |
| Born in Other Caribbean | 0.498 | 0.811 | 0.093 | 0.024 |
| Born in Former Soviet Union | 0.504 | 0.669 | 0.175 | 0.017 |
| Born in South Asia | 0.441 | 0.723 | 0.066 | 0.016 |
| Born in China, Taiwan, or Hong Kong | 0.471 | 0.696 | 0.134 | 0.012 |
| Nonwhite | 0.677 | 0.841 | 0.904 | 0.866 |
| Eligible for free or reduced price lunch | 0.556 | 0.836 | 0.904 | 0.866 |

Table 5: Exposure to Peer Group Race, Poverty, and LES, 1998-99

| Exposure of:/ Exposure to: | White | Black | Hispanic | Asian | Eligible for free or reduced price lunch | LES |
|---|---|---|---|---|---|---|
| *% of total population* | *0.156* | *0.355* | *0.378* | *0.107* | *0.866* | *0.050* |
| Native-born | 0.154 | 0.371 | 0.375 | 0.096 | 0.861 | 0.045 |
| Foreign-born | 0.168 | 0.272 | 0.393 | 0.163 | 0.872 | 0.078 |
| Recent immigrant | 0.164 | 0.272 | 0.388 | 0.174 | 0.876 | 0.078 |
| LES | 0.128 | 0.206 | 0.501 | 0.163 | 0.908 | 0.106 |
| Born in Dominican Republic | 0.039 | 0.218 | 0.686 | 0.053 | 0.960 | 0.094 |
| Born in Mexico, Central America, or Spanish South America | 0.138 | 0.188 | 0.518 | 0.154 | 0.891 | 0.095 |
| Born in Other Caribbean | 0.056 | 0.665 | 0.208 | 0.067 | 0.919 | 0.035 |
| Born in Former Soviet Union | 0.461 | 0.135 | 0.193 | 0.210 | 0.770 | 0.076 |
| Born in South Asia | 0.204 | 0.165 | 0.366 | 0.264 | 0.843 | 0.086 |
| Born in China, Taiwan, or Hong Kong | 0.207 | 0.090 | 0.275 | 0.427 | 0.833 | 0.132 |

Table 6: Test Scores of Peers in Previous Year
Means Weighted by Share of Group in Current School, 1998-99

| | Previous year standardized test score | | | |
|---|---|---|---|---|
| | Reading, current 4th graders | Math, current 4th graders | Reading, current 7th graders | Math, current 7th graders |
| Native-born | -0.011 | 0.004 | -0.033 | -0.045 |
| Foreign-born | 0.033 | 0.078 | -0.017 | 0.011 |
| Recent immigrant | 0.032 | 0.079 | -0.039 | -0.011 |
| LES | -0.060 | -0.021 | -0.106 | -0.082 |
| Born in Dominican Republic | -0.233 | -0.250 | -0.269 | -0.266 |
| Born in Mexico, Central America, or Spanish South America | -0.024 | -0.005 | -0.075 | -0.062 |
| Born in Other Caribbean | -0.091 | -0.092 | -0.141 | -0.150 |
| Born in Former Soviet Union | 0.357 | 0.498 | 0.291 | 0.420 |
| Born in South Asia | 0.146 | 0.230 | 0.126 | 0.175 |
| Born in China, Taiwan, or Hong Kong | 0.234 | 0.398 | 0.217 | 0.270 |

Table 7: School Resources
Means Weighted by Share of Group in School, 1998-99

| | % teachers fully licensed or permanently assigned | % teachers more than 5 years teaching | % teachers masters degree or higher | per pupil spending, classrooms | per pupil spending, aggregate |
|---|---|---|---|---|---|
| Native-born | 0.826 | 0.620 | 0.789 | $3,892.95 | $8,652.41 |
| Foreign-born | 0.834 | 0.632 | 0.807 | $3,912.00 | $8,351.79 |
| Recent immigrant | 0.843 | 0.627 | 0.810 | $3,857.71 | $8,287.54 |
| LES | 0.809 | 0.620 | 0.797 | $3,962.04 | $8,463.94 |
| Born in Dominican Republic | 0.745 | 0.588 | 0.753 | $3,930.29 | $8,605.53 |
| Born in Mexico, Central America, or Spanish South America | 0.829 | 0.616 | 0.808 | $3,907.05 | $8,335.81 |
| Born in Other Caribbean | 0.796 | 0.610 | 0.770 | $3,868.09 | $8,350.10 |
| Born in Former Soviet Union | 0.904 | 0.678 | 0.853 | $4,018.70 | $8,363.55 |
| Born in South Asia | 0.884 | 0.649 | 0.842 | $3,834.57 | $8,022.74 |
| Born in China, Taiwan, or Hong Kong | 0.896 | 0.696 | 0.866 | $4,040.31 | $8,454.42 |

Table 8: School Peers, Test Scores, and Resources by Race and Nativity, 1998-99

| | Exposure to free or Reduced lunch (.866 of total population) | Previous year standardized reading for current 4th graders | % teachers masters degree or higher | per pupil spending, aggregate |
|---|---|---|---|---|
| Native-born white | 0.610 | 0.415 | 0.860 | $8,363.03 |
| Foreign-born white | 0.771 | 0.312 | 0.848 | $8,329.64 |
| Native-born black | 0.921 | -0.125 | 0.760 | $8,810.17 |
| Foreign-born black | 0.920 | -0.108 | 0.765 | $8,465.52 |
| Native-born Hispanic | 0.918 | -0.126 | 0.777 | $8,720.13 |
| Foreign-born Hispanic | 0.929 | -0.138 | 0.778 | $8,472.45 |
| Native-born Asian | 0.770 | 0.285 | 0.859 | $8,086.42 |
| Foreign-born Asian | 0.828 | 0.178 | 0.849 | $8,114.78 |

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